



CALIFORNIA SCHOOLS

MARCH 1959



DOROTHY M. DONAHOE
Chairman, Assembly
Committee on Education

CALIFORNIA SCHOOLS

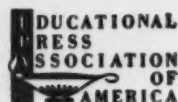
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ASSEMBLYWOMAN DOROTHY M. DONAHOE, CHAIRMAN, ASSEMBLY COMMITTEE ON EDUCATION

Dorothy M. Donahoe, Chairman of the Assembly Committee on Education, was the first person elected to the California State Assembly from the newly created 38th Assembly District, Kern County, to serve for the 1953-55 term. She has been re-elected to serve for each term since, from 1955 to 1961. In 1955 she was one of four members of the State Assembly who attended the White House Conference on Education, Washington, D. C., and in 1957, she was one of two members of the State Assembly who attended the President's Western Regional Conference on Higher Education, San Francisco.

Miss Donahoe has been a resident of Bakersfield since 1914, where she attended school, and served as the Registrar of Bakersfield High School from 1935 to 1953. She has been active in many community enterprises and has served on many committees related to education, mental hygiene, social welfare, and business, and has received many honors in recognition of her services in these fields. Her present assignments as Assemblywoman, in addition to Chairmanship of the Assembly Committee on Education, include the following committees: ways and means, social welfare, manufacturing, and oil and mining industries.

Assemblywoman Donahoe's hobbies include drama and literature. She is a charter member of the Kern County Community Theatre, and a member of many professional organizations connected with her many interests and activities.



**A MESSAGE
from the Superintendent
of Public Instruction**

PUBLIC SCHOOLS WEEK, 1959

The fortieth annual observation of Public Schools Week will be held April 27-May 1, 1959. Because the early days of 1958 were critical ones for public education, and because criticism was being leveled at our schools that was both just and unjust, I urged, in my Public Schools Week message last year that everyone "invite the sideline coaches to meet the team and the coaching staff. Many of us have discovered that our finest support has come from the ranks of the sideline coaches. There is no better support than that which comes from understanding and firsthand knowledge. We must make sure that the public is familiar with and understands its public schools."

Since I made that statement a major effort has been undertaken to provide our citizens opportunity to have full knowledge and thorough understanding of the California public school system. This effort was encouraged by the 1958 Legislature creating a Joint Interim Committee on the Public Education System which was authorized and directed to assume the following responsibilities:

Ascertain, study and analyze all facts relating to the public schools of this State, including but not limited to a study of the curricula, textbooks and instructional materials employed in the public schools, the present teaching methods for instructing pupils, school finances, and equipment, teaching personnel and administrative procedures, educational goals and administrative structure in the public schools. Such study shall also be devoted to the operation, effect, administration, enforcement and needed revision of any and all laws in any way bearing upon or relating to the subject of this resolution, and to report thereon to the Legislature including in the reports its recommendations for appropriate legislation.

The Joint Interim Committee on the Public Education System was also authorized to appoint a Citizens Advisory Commission, to consist of not fewer than 15 persons, to assist and advise the Committee in deliberations on the subject assigned to it for study. An appropriation of \$50,000 was made available to finance the activities of these two groups. The work of the committee will constitute the fourth major review of the California education system that has been made.

The first review of California's education system was authorized by the forty-third session of the Legislature (1919). The recommendations presented in the *Report of the Legislative Committee on Education As Authorized by Senate Concurrent Resolution No. 21, by the Forty-third Session of the Legislature of California*, influenced a reorganization of educational administration and control at the state level. This organization involved the establishment of the State Department of Education with the Superintendent of Public Instruction its Director, and the State Board of Education its policy making body. The second review was authorized by the forty-eighth session of the Legislature (1929), which created the California Commission for the Study of Educational Problems. The Commission, composed of members appointed by the Governor, was given \$50,000 to investigate the educational, geographical, financial, and organizational problems connected with public education in California. The third review, "for the purpose of making a study of the administration, organization, and financial support of the Public School System of the State" was authorized in 1944. The report of this study, *The Administration, Organization, and Financial Support of the Public School System, State of California*, was submitted to the Legislature in 1945.

I am convinced that these reviews were healthy and sound procedures, and that the results obtained were well worth the time, energy, and money invested by all interested parties. The appropriateness of such procedures is made apparent in the following statement by Henry Suzzallo:

It is one of the complaints of the schoolmaster that the public does not defer to his professional opinion as completely as it does to that of practitioners in other professions.

At first sight it might seem as though this indicated a defect either in the public or in the profession; and yet a wider view of the situation would suggest that such a conclusion is not a necessary one.

The relations of education to the public are different from those of any other professional work. Education is a public business with us, in a sense that the protection and restoration of personal health or legal rights are not. To an extent characteristic of no other institution save that of the state itself, the school has power to modify the social order. And under our political system, it is the right of each individual to have a voice in the making of social policies, as indeed, he has a vote in the determination of political affairs.

If this be true, education is primarily a public business and only secondarily a specialized vocation. The layman, then, will always have his right to some utterance on the operation of the public schools.¹

The citizens of California have decided that every detail of our educational system should now be re-evaluated. A study of such scope and magnitude will entail many months of work to secure lasting and significant results. When the committee to make this study was formed, I wrote each member pledging the complete co-operation of the State Department of Education. I also pointed out that the scope of the project called for an unhurried, searching examination in order that valid and reliable data could be obtained.

I have been extremely pleased with the progress of the Joint Interim Committee and the Citizens Advisory Commission and with the fact that the Commission saw fit to begin its hearings by calling upon the State Department of Education for testimony regarding particular aspects of our state system of public education. Since education is a major function and responsibility of the state, it seemed quite fitting to have the state educational agency testify as to its basic responsibilities, functions, and duties.

¹ In Introduction to John Dewey, *Moral Principles in Education*. New York: Houghton Mifflin Co., 1909.

It is the intent of this Commission to continue these hearings throughout the state, in order that every representative agency, lay and professional alike, will have an opportunity to present evidence as to its particular role in the educational process. According to the best information available, California is one of the first states to conduct such an exhaustive examination. For this fact we should be both grateful and proud, because it reflects the genuine interest and importance which the citizens of California attach to education.

I would like to urge teachers, administrators, members of parent teacher associations, school board members, and all other California citizens to give the work of this Commission top priority and attention. If we work together in providing this fact-finding body with the most up-to-date information available, and couple this with the very best of our combined thinking, we will be doing our children, our state, and our nation a great service.

Roy E. Simpson

EXTENT TO WHICH CALIFORNIA HIGH SCHOOL STUDENTS TAKE COURSES IN MATHEMATICS, SCIENCE, AND FOREIGN LANGUAGES

During the summer of 1958 the Bureau of Secondary Education made a study to determine the extent to which students in California public high schools take courses in mathematics, science, foreign languages, social studies, and English during their high school careers. This report presents certain of the results of the study.

The data used in making the study were collected by questionnaires. Each principal of a public high school was requested to provide information regarding each of the five fields that were taken by June, 1958 graduates. The data were tabulated to determine (1) the number of years graduates had taken courses in each of the fields; and (2) the number of years the graduates had taken certain specified courses in mathematics and science. The returns accounted for 81,756 graduates. This was more than 80 per cent of those graduated by the regular day high schools.

Data for each of the five subject fields were tabulated and the results reported by different consultants in secondary education. The reports, therefore, differ in several ways, but in each instance the report is sufficiently similar to the others so that desired comparisons may be made. This article contains the reports of the studies made to determine the extent to which mathematics, science, and foreign languages are included in the programs of California public high students.

High School Graduates and Their Study of Mathematics

GEORGE L. ROEHR, *Consultant in Secondary Education*

This study, based upon a survey of the mathematics courses that were taken by 1958 graduates in California public high schools, is in contrast with summaries of studies that report the extent of instruction in certain subject fields in terms of "requirements" and "electives." Miscomprehensions with regard to the instructional programming of the schools may result from variations in the meaning of terms used and from oversimplification in attempts to clarify such terms.

Ambiguity in the use of the term "requirement" is made apparent by the fact that while elementary algebra is not a requirement for graduation from high school, it is a requirement for admission to the University of California; and that while trigonometry is required of students who wish to enter the School of Engineering at the University, it is

not required of those who plan to enter the College of Letters and Science. The meaning of the term "requirement" changes according to the goal of the student, whether that goal is further study or occupational preparation.

California educators have consistently recognized the importance of mathematics in the high school curriculum, but it is not a simple matter to place students with different occupational and professional objectives in courses that will be appropriate to these objectives. The choice of such courses may be shared by the student, his parents, and school personnel; and the factors which influence their decision include not only the student's vocational goals, but also his past performance in the field of mathematics, and his score on mental tests.

In the study that was made of mathematics courses completed by June, 1958 high school graduates, data were sought to determine (1) the extent of time spent by students in the study of mathematics, grades nine through twelve; and (2) how many students had taken certain mathematics courses. These certain courses, with titles that have much the same meaning in all the schools surveyed, are generally regarded as difficult, and are college preparatory in nature.

Three characteristics of instruction in California public high schools influence an understanding of any summary related to the extent of instruction in mathematics. The first of these is the practice of using mathematics achievement tests to determine the extent to which students should be required to enroll in certain mathematics courses. Students whose test scores are above an established standard are exempt from courses designed to aid those who achieve less than the standard score. The second practice is the classifying of some courses which include the extensive use of computation, such as bookkeeping, as a commercial subject rather than as a part of the mathematics program. On October 31, 1956, there were 26,077 students enrolled in first-year bookkeeping. Enrollment in bookkeeping has exceeded 20,000 each year since 1951, and it is estimated that it will reach 30,000 during the current (1958-59) school year. The third practice is that of presenting certain phases of mathematics study in conjunction with other studies in subject areas in which mathematics is an essential tool, such as vocational agriculture, which makes extensive use of mathematics in finance and record keeping, feed preparation, and chemical mixture, and in project cost analysis.

The scope of the mathematics program in California public high schools is shown in Tables 1, 2, and 3, each of which is based upon the total number (81,756) of June, 1958 graduates who were reported in the study.

Table 1, by use of five categories that are mutually exclusive, reports the number of years that the graduates took mathematics in grades nine through twelve.

While Table 1 deals with mutually exclusive categories, Table 2 is cumulative.

TABLE 1
NUMBER AND PER CENT OF JUNE, 1958 HIGH SCHOOL
GRADUATES WHO HAD STUDIED MATHEMATICS FOR
SPECIFIED LENGTHS OF TIME

Number of years	Number of graduates	Per cent of graduates
3½, 4 or more.....	15,929	19.5
2½ or 3.....	21,028	25.7
1½ or 2.....	28,820	35.3
½ or 1.....	14,501	17.7
None.....	1,478	1.8

TABLE 2
CUMULATIVE NUMBER AND PER CENT OF JUNE, 1958 HIGH
SCHOOL GRADUATES WHO HAD STUDIED MATHEMATICS
FOR SPECIFIED LENGTHS OF TIME ¹

Number of years	Number of graduates	Per cent of graduates
3½ or more.....	15,929	19.5
2½ or more.....	36,957	45.2
1½ or more.....	65,777	80.5
½ or more.....	80,278	98.2

¹ There were 1,478 (1.8 per cent) of the graduates who had not had any mathematics.

It has long been a practice of California public high schools to be selective about the students enrolled in various mathematics courses, particularly those courses regarded as college preparatory in nature. The four elements used in various combinations in guiding the selection procedures take into consideration (1) the students' prior scholastic records, with emphasis on mathematics; (2) the results of prognosis tests; (3) the results of achievement tests; and (4) the goals of the students. Data in Table 3 have been affected by such considerations.

Table 3 shows the number and per cent of 1958 graduates of California public high schools who took selected mathematics courses. It is obvious that these were not mutually exclusive groups, since those students who took plane geometry had previously taken the first year course in algebra, and so on.

TABLE 3
NUMBER AND PER CENT OF JUNE, 1958 HIGH SCHOOL
GRADUATES WHO HAD STUDIED SELECTED
MATHEMATICS COURSES

Course	Number of graduates	Per cent of graduates
Algebra, first year.....	56,654	69.2
Algebra, second year.....	20,885	25.5
Trigonometry.....	11,276	13.8
Plane geometry.....	39,980	48.9
Solid geometry.....	7,120	8.7
Analytic geometry or calculus..	2,171	2.7

Are high schools giving the needed attention to instruction in mathematics? What cues are discernible that suggest examination of programs in districts and their schools? The following conclusions may be drawn from the data revealed by the study.

The 19.5 per cent who studied mathematics for three and one-half or more years represents the portion of the student population that may be expected to profit most from this kind of instruction. This has been demonstrated by tests of academic capacity and by the experience of the students undertaking such programs. The successful students in this group are those most likely to undertake college programs in engineering, mathematics, and physical science.

At the opposite end of the scale are the 17.7 per cent of the graduates who have taken one or two semesters in mathematics, and the 1.8 per cent who reported having had no course in mathematics during high school. Schools should be stimulated to scrutinize their mathematics programs and the characteristics of those students who might come within the categories covered by limited mathematical training. Such scrutiny could provide answers to questions such as the following: Have many of these students taken courses such as bookkeeping where skill in computation is increased and concepts of quantitative balances are enlarged? Are students whose scholastic and test records indicate adequate academic capacity allowed to bypass appropriate courses? Are students of limited capacity encouraged or allowed to enroll in courses where the probability of completion or mastery is slight? Is the range of the mathematics curriculum wide enough to provide the knowledge and skill that will aid the students in the group who have studied mathematics for one year or less? In general, to what extent can we operate an instructional program that meets the diverse capacities of students in each high school? Do we need additional "tracks" in our mathematics curriculum to carry students toward well defined goals of mathematical skill and understanding?

Table 1 shows that the largest group of graduates (35.3 per cent) had studied mathematics for only one and one-half or two years; while Table 2 shows that 45.2 per cent had studied mathematics for two and one-half years or more. For the group shown in Table 1 as having had one and one-half or two years of mathematics, there is a grade record for each individual's degree of success. Pertinent questions concerning these graduates are: (1) what portion of this group was highly successful in mathematics courses? and (2) did successful students terminate their study of mathematics at the two-year level? The answers to both questions have obvious implications for the program of instruction and for guidance services.

Table 3 contains only the principal college preparatory courses in mathematics and excludes many general mathematics courses in high school curriculums. The courses listed are of great importance since it is through a sequence of these courses that we prepare students who will make major contributions to society as specialists in mathematics or in the sciences that make extensive use of mathematics.

Nearly 70 per cent of the graduates had taken the first-year course in algebra; and 48.9 per cent continued with plane geometry. This means that more than one-half of the total group did not complete the algebra-geometry sequence, or that 29.3 per cent of those who studied first-year algebra did not continue with plane geometry. It is probable that a major segment of the students who took no more mathematics than elementary algebra could have been provided with mathematics instruction of greater significance to them than elementary algebra.

The heavy demand for technicians and skilled workers requires that high schools give attention to the mathematics courses for students who will enter industry or vocational training. Many of our high schools have evolved new courses to better equip such students. This problem received major attention in 1957 from a state-wide committee appointed by the California Committee for the Study of Education.

Table 3, which includes some courses in mathematics that in former years were found only in the college curriculum, shows that enrollment in solid geometry courses was much smaller than enrollment in trigonometry courses. These facts are indicative of changes occurring in mathematics programs. The purpose of these changes is to include more studies in the college preparatory program as an introduction to college instruction in mathematics, science, engineering, and the like. In general, new content has been drawn from college-level algebra, analytic geometry, and elementary analysis, to replace outmoded content.

Variations among school districts warrant self-evaluation by each district. When school districts are grouped according to the counties in which they are located certain comparisons are possible. It should be clearly recognized that grouping of school districts results in a reduction of the extreme variations that might exist in a direct comparison

between separate school districts. Consider the mutually exclusive categories used in Table 1, particularly the per cent of graduates studying mathematics for three and one-half years or more. In one-fourth of the counties, 13.9 per cent or less of the graduates had studied mathematics for three and one-half years or more. This is the lower quartile group.

In the top quartile of county groupings, 21.5 per cent or more of the graduates had studied mathematics three and one-half years or more. These differences, which indicate that even greater differences might exist among separate districts, should serve as a reminder to school personnel that appraisals of their mathematics curriculums are in order.

The findings of this study of mathematics in programs of high school graduates do not indicate need for revolutionary changes. The three persistent problems continue to be: (1) suitable placement of students, based upon a careful appraisal of their academic capacity; (2) a curriculum design that gives due recognition to instructional grouping; the student's capacity to learn; requirements; and student goals; and (3) the improvement of the mathematics curriculum to secure maximum understanding of the subject; and inclusion of content of the greatest usefulness.

Finally, the sequential nature of instruction in mathematics illustrates the need for good teaching, so that the maximum number of students may continue with successive steps of the sequence and thereby decrease the present differential, typified by dropouts between elementary algebra and plane geometry.

High School Graduates and Their Study of Science

HERBERT D. GWINN, *Consultant in Secondary Education*

This study was made to determine the extent to which the June, 1958 graduates included science courses in their high school programs. Table 1 shows the number and per cent of the graduates who had studied science subjects for specified lengths of time.

The data in Table 1 may be analyzed as follows:

1. The 54.8 per cent of graduates who had studied science for from one-half to two years had for the most part done so to meet graduation requirements and to meet minimum college entrance requirements.
2. Most of the graduates who had two and one-half to three years of science were most likely college bound. Certain of those in this group may have developed an interest in science to the extent that they may be seriously thinking of choosing a career in the field.

3. The graduates who had three and one-half or more years of science were probably college bound and had decided on a career in the field.
4. The potential reservoir of science talent may be found among graduates who have had two and one-half or more years of science in high school. Our future career scientists will, therefore, likely come from 33.2 per cent of the graduates.
5. The 2.4 per cent of the graduates who had no science attended high schools that did not include science in the graduation requirement, or were students who did not plan to attend college.

TABLE 1

NUMBER AND PER CENT OF JUNE, 1958 HIGH SCHOOL GRADUATES WHO HAD STUDIED SCIENCE FOR SPECIFIED LENGTHS OF TIME

Number of years	Number of graduates	Per cent of graduates
3½, 4 or more.....	10,666	13.0
2½ or 3.....	16,485	20.2
1½ or 2.....	28,284	34.6
½ or 1.....	24,258	29.8
None.....	1,925	2.4

Table 2 shows the cumulative number and per cent of graduates who had included science in their high school programs.

TABLE 2

CUMULATIVE NUMBER AND PER CENT OF JUNE, 1958 HIGH SCHOOL GRADUATES WHO HAD STUDIED SCIENCE FOR SPECIFIED LENGTHS OF TIME

Number of years	Number of graduates	Per cent of graduates
3½ or more.....	10,666	13.0
2½ or more.....	27,151	33.2
1½ or more.....	55,435	67.8
½ or more.....	79,693	97.6

SELECTED SCIENCE SUBJECTS STUDIED

Table 3 shows the number and per cent of the June, 1958 graduates whose high school programs included courses in selected sciences.

TABLE 3
NUMBER AND PER CENT OF JUNE, 1958 HIGH SCHOOL
GRADUATES WHO HAD STUDIED SELECTED
SCIENCE COURSES

Course	Number of graduates	Per cent of graduates
General Science.....	41,961	51.3
Biology or Life Science.....	55,033	67.3
Chemistry.....	28,682	35.1
Physics.....	13,672	16.7
Physiology.....	11,264	13.8
Other science(s).....	10,385	12.7

The data in Table 3 reveal that biology, general science, chemistry, and physics rank one, two, three, and four in order according to the number and per cent of students who take them. The heaviest enrollments are in the first three of these courses. This is not surprising since general science, biology, or both, are commonly included in graduation requirements, and chemistry is frequently taken by students to meet the minimum science requirement for college entrance. A sizable portion of the 16.7 per cent of the graduates who had taken physics had probably also taken chemistry.

The enrollment in science courses is also influenced by grade placement of the courses and extent of the school's science offering. Usually, general science is offered in the ninth grade, biology or life science in the tenth, chemistry in the eleventh, and physics in the twelfth.

The most significant fact presented in Table 3 is that more students enroll for biological sciences than for physical sciences.

THE EFFECT OF SOCIAL AND ECONOMIC CONDITIONS ON THE PROGRAMS OF STUDENTS

In order to secure a comparison of the science work completed by June, 1958 graduates on the basis of the localities of the schools they attended, graduates from the schools in 15 selected counties were studied. There were five counties which were predominantly industrial and urban and were heavily populated. Within the boundaries of these counties there were 19 junior colleges, five state colleges, three campuses of the University of California, two private universities, and several private colleges. A total of 73 school districts in these counties maintained high schools and these schools accounted for 43,917 or 53.71 per cent of the graduates included in the study. Only nine of the high schools in the five counties may be considered as small.

There were five counties which were largely rural in nature but had some industry and a few heavily populated areas. Only three junior

colleges were located in these counties. There were no state colleges, public or private universities, or private colleges within their boundaries. There were 22 school districts that maintained 105 high schools. These high schools accounted for 2,803 or 3.4 per cent of the graduates included in the study. Of the 25 high schools, six were large, eleven were medium sized, and eight were small.

There were five counties that were located in the more remote regions of the state, had small populations, and were strictly rural. There were no junior colleges, state colleges, or other institutions of higher learning in these counties. These counties may be considered far removed from any seat of higher learning. The eight school districts in these counties maintained 17 high schools, 16 of which were small and one that was medium sized. These schools provided only 172 of the graduates, less than .3 per cent of those included in the study.

For purposes of this study the high schools in the five counties that accounted for the largest number of graduates included in the study were classified as being in Group One; the five that accounted for the second largest number, in Group Two; and the five that accounted for the smallest number, in Group Three.

Table 4 shows the number of graduates from the schools in each group of counties according to the number of years they studied science during their high school careers.

TABLE 4

NUMBER OF JUNE, 1958 HIGH SCHOOL GRADUATES FROM THE SCHOOLS
IN EACH GROUP OF COUNTIES WHO HAD STUDIED SCIENCE
FOR A SPECIFIED NUMBER OF YEARS

Number of years	Number of graduates from schools in Group		
	One	Two	Three
3½, 4 or more.....	6,862	206	22
2½ or 3.....	9,551	489	50
1½ or 2.....	15,721	1,025	50
½ or 1.....	11,220	921	45
None.....	563	162	5
Total.....	43,917	2,803	172

Table 5 shows the number of graduates from the high schools in each of the three groups of counties who had studied selected science subjects during their high school careers.

Table 5 shows that the largest enrollments for the schools in the three groups of counties are found in biology, general science, and chemistry,

ranked in that order. In only three instances did the per cent of graduates in any of the schools in those groups of counties fall below that for the state average in these three subjects. The schools in Group Two were 7.78 per cent below the per cent of all graduates in general science, and .28 per cent below them in chemistry.

TABLE 5
NUMBER OF JUNE, 1958 HIGH SCHOOL GRADUATES FROM SCHOOLS
IN EACH GROUP OF COUNTIES WHO HAD STUDIED
SPECIFIED SCIENCE COURSES

Course	Number of graduates from schools in Group		
	One	Two	Three
General Science.....	24,413	1,236	113
Biology or Life Science.....	31,228	1,965	92
Chemistry.....	15,162	977	77
Physics.....	7,142	504	49
Physiology.....	8,363	43	5
Other science(s).....	6,064	191	19

Group One schools were .42 per cent below the per cent of all graduates in physics. Group Two exceeded the per cent of all graduates by 1.18 per cent. Group Three exceeded the per cent of all graduates in chemistry and physics by 13.86 per cent and 20.44 per cent, respectively.

The per cent of graduates of schools in Group One slightly exceeded the per cent of all graduates who had taken physiology, and about equalled the per cent who had taken courses classified as "other science." The per cent of graduates of schools in Groups Two and Three were below the per cent of all graduates who had studied these subjects.

The schools in the counties in Group Three seem to get a greater per cent of their students to take chemistry and physics than is the case with the schools in the other two groups of counties. The schools in Group One are apparently making special provisions for students as is indicated by the per cent of enrollment in "other sciences."

It may be concluded from this study that a high per cent of California public high schools are maintaining programs of instruction in science that give students opportunity to secure the training they need, whether they plan to continue their education beyond high school or accept employment immediately following graduation. It is also apparent that California public high schools are encouraging students with ability to enroll for science courses. These conclusions are generally

applicable to schools of all sizes. However, it should be noted that the large high schools generally offer students more opportunity to pursue science for a greater number of years than do the small high schools.

High School Graduates and Their Study of Foreign Languages

JOHN R. EALES, *Consultant in Secondary Education*

An analysis of the record submitted showed that 56,354 graduates, representing 68.9 per cent of the 81,756 reported, had taken some work in foreign languages. The following tables give the number and per cent of the graduates reported who had taken various amounts of one or more foreign languages.

Table 1 shows that the largest per cent of students who had studied only one foreign language had devoted one and one-half or two years to the study. Since students studying a foreign language for a second year seldom drop the subject at mid-year, it may be assumed that 30.8 per cent of the graduates had taken two years of one foreign language.

TABLE 1

NUMBER AND PER CENT OF JUNE, 1958 HIGH SCHOOL GRADUATES WHO HAD STUDIED ONLY ONE FOREIGN LANGUAGE FOR A SPECIFIED NUMBER OF YEARS

Number of years	Number of graduates	Per cent of graduates
3½, 4, or more.....	2,031	2.5
2½ or 3.....	7,359	9.0
1½ or 2.....	25,176	30.8
½ or 1.....	14,791	18.1

Table 2 shows that 42.3 per cent of the graduates had taken one foreign language for one and one-half or more years. This per cent would probably remain at very near the same level if those who had only one and one-half years of study were eliminated. It may therefore be concluded with reasonable security that 42.3 per cent of all the graduates had studied a foreign language for two or more years if it may be assumed that students seldom if ever drop a foreign language course at mid-year even though they have taken the language for more than two years. We may therefore conclude that 11.5 per cent of the graduates had studied a foreign language for three years and that 2.5 per cent had studied it for four or more years.

TABLE 2
CUMULATIVE NUMBER AND PER CENT OF JUNE, 1958 HIGH SCHOOL GRADUATES WHO HAD STUDIED ONLY ONE FOREIGN LANGUAGE FOR A SPECIFIED NUMBER OF YEARS

Number of years	Number of graduates	Per cent of graduates
3½ or more.....	2,031	2.5
2½ or more.....	9,390	11.5
1½ or more.....	34,566	42.3
½ or more.....	49,357	60.4

TABLE 3
NUMBER AND PER CENT OF JUNE, 1958 HIGH SCHOOL GRADUATES WHO HAD STUDIED TWO OR MORE FOREIGN LANGUAGES FOR A SPECIFIED NUMBER OF YEARS

Number of years	Number of graduates	Per cent of graduates
4½ or 5.....	592	0.7
3½ or 4.....	1,963	2.4
2½ or 3.....	1,962	2.4
1½ or 2.....	1,417	1.7
½ or 1.....	1,063	1.3

TABLE 4
CUMULATIVE NUMBER AND PER CENT OF JUNE, 1958 HIGH SCHOOL GRADUATES WHO HAD STUDIED TWO OR MORE FOREIGN LANGUAGES FOR A SPECIFIED NUMBER OF YEARS

Number of years	Number of graduates	Per cent of graduates
4½ or more.....	592	0.7
3½ or more.....	2,555	3.1
2½ or more.....	4,517	5.5
1½ or more.....	5,934	7.2
½ or more.....	6,997	8.5

Tables 3 and 4 illustrate the fact that only 8.5 per cent of the 1958 graduates had studied more than one foreign language. This is in keeping with the most recent recommendations regarding foreign language

study. Students are being urged to concentrate on one foreign language for three or four years, rather than take two different languages, each for two years or less.

Table 5 contains the combined data reported in Tables 1 and 3. For example, 26,593 graduates are reported in Table 5 as having studied one and one-half or two years of foreign language. This figure is obtained by adding the 25,176 graduates reported in Table 1 and the 1,417 students reported in Table 3 as having studied two or more foreign languages for the same length of time.

TABLE 5
NUMBER AND PER CENT OF JUNE, 1958 HIGH SCHOOL
GRADUATES WHO HAD STUDIED ONE OR MORE
FOREIGN LANGUAGES FOR A SPECIFIED
NUMBER OF YEARS

Number of years	Number of graduates	Per cent of graduates
3½, 4, or more.....	4,586	5.6
2½ or 3.....	9,321	11.4
1½ or 2.....	26,593	32.5
½ or 1.....	15,854	19.4

Table 6 was developed by combining the data in Tables 2 and 4. The figure of 56,354 graduates shown as having completed one-half year or more of foreign language was derived from adding the 49,357

TABLE 6
CUMULATIVE NUMBER AND PER CENT OF JUNE, 1958 HIGH
SCHOOL GRADUATES WHO HAD STUDIED ONE OR
MORE FOREIGN LANGUAGES FOR A SPECIFIED
NUMBER OF YEARS

Number of years	Number of graduates	Per cent of graduates
3½ or more.....	4,586	5.6
2½ or more.....	13,907	17.0
1½ or more.....	40,500	49.5
½ or more.....	56,354	68.9

graduates reported in Table 2 as having taken some work in one foreign language to the 6,997 graduates shown in Table 4 who studied two or more foreign languages. This total of 56,354 graduates is 68.9 per

cent of the June, 1958 graduates reported. As in the explanation of Tables 1 and 2, it can be assumed in Table 6 that 49.5 per cent of the graduating seniors reported had taken two or more years of a foreign language or languages and 68.9 per cent had studied one foreign language for at least one-half year.

In making a comparison between the amount of foreign language studied by the graduates of high schools in the ten counties reporting the largest number of graduates, and the amount of foreign language studied by graduates of the high schools in the ten counties reporting the smallest number of graduates, two implications may be drawn from the data submitted. First, in the ten counties graduating the largest number of high school students, an average of 29.1 per cent had taken no foreign language, while in the ten smallest counties 36.2 per cent had taken no foreign language. Second, students who went to schools in the counties having the largest number of graduates seemed more likely to have taken more than two years of a foreign language than students who had graduated from schools in counties with small numbers of graduates. The study shows that 15.8 per cent of the graduates of high schools in the ten largest counties had taken more than two years of foreign language instruction while only 5.7 per cent of the graduates of schools in the ten counties graduating the smallest number of students had taken more than two years of language.

It appears from the study that slightly more than two out of three graduates of California high schools enrolled in foreign language courses during their high school careers. Approximately one out of two graduates completed two years of study in this field.

If a student graduates from a school in a large county rather than from a school in a small county, as measured by the number of graduates reported in this study, it seems that he will be more likely to enroll in a foreign language course. It also appears that he will be a good deal more likely to complete more than two years of work in this subject area.

REPORT ON CHICAGO SCHOOL FIRE DISASTER

JOE R. YOCKERS, *State Fire Marshal*

The following letter was sent by the State Fire Marshal, Joe R. Yockers, to Roy E. Simpson, Superintendent of Public Instruction, on January 15, 1959. The letter was accompanied by a report made to Governor Goodwin J. Knight, on December 8, 1958, after the State Fire Marshal had conducted an investigation on the fire disaster.

LETTER TO SUPERINTENDENT OF PUBLIC INSTRUCTION

I know that every school official was startled at the news of the disastrous fire which occurred in Our Lady of the Angels School in Chicago last December 1, 1958. I am certain that they thought of their own school buildings and what might happen should a similar fire occur therein. We have received numerous requests from school officials as well as fire and building officials for information on the probable causes and factors which contributed to the heavy loss of lives in this school fire.

Immediately following the occurrence of this fire, Governor Knight instructed me to go to Chicago to investigate the situation in order that we might have factual firsthand knowledge of what happened and what should be done to guard against a disaster of this kind in California. I left immediately for Chicago, arriving there on December 3, at 7:00 a.m., before any debris had been removed from the structure. I was fortunate in being accompanied by a fire official who responded with the first engine companies and who had firsthand knowledge of the fire and rescue operations from the very beginning.

I am enclosing a copy of my report to Governor Knight which I believe is self-explanatory and brings to our attention what can happen when recognized principles of fire safety are ignored. A fire of this kind could happen in California even though our fire safety standards, as set forth in Title 19 of the California Administrative Code, would have prohibited the lawful use of the building as a school.

Even though a building may be constructed with all of the essential fire safety devices incorporated therein, a disaster of this type could still occur because of the failure to maintain properly those safety features. For example, stairway enclosure doors are equipped with self-closing devices but in many instances we find them held open with wedges at the floor line. In such instances the effect of the fire door is completely nullified.

We realize that in some of the older structures it is difficult and costly to make fire safety alterations, particularly where they involve struc-

tural changes, but unless we take steps to provide reasonably for the protection of the children therein, we have no defense. There certainly can be no justification for failure to eliminate common fire hazards such as improper housekeeping, storage of combustible materials, improper storage, use of flammable liquids, and other recognized fire hazards. By the same token, there can be no excuse for failure to conduct proper fire drills in accordance with the provisions of the Education Code.

Fire officials from local fire departments are presently making careful inspections and surveys of both public and private schools in their areas of responsibility, and field representatives from the Office of the State Fire Marshal are reviewing schools in areas outside of the corporate cities and fire districts which have legally organized fire prevention bureaus. They offer their full co-operation to school authorities in meeting and solving these fire safety problems, and we solicit the co-operation of all school officials in both public and private schools.

We are reviewing our present exit requirements for school occupancies and we feel that they are in need of some amendments to insure safe avenues of escape in the event of fire. We believe that stairways should be enclosed in fire-resistive enclosures whenever the building is more than one story in height. We believe that there should be no plain glass transoms between the corridors and the classrooms. We believe that corridor walls should be of not less than one-hour fire-resistive construction, with protected openings, and that the interior finish in corridors and stair shafts should be incombustible or of approved slow-burning material.

In establishing our school fire safety standards, we were extremely liberal in the type of construction allowed in one-story school buildings because of the fact that safe exit facilities can be secured with minimum expense. When buildings are of multiple story construction, fire-resistive standards and protection of exit channels become severe and, therefore, costly to meet. In the interests of safety and economy, we strongly recommend that school buildings be not more than one story in height unless it is necessary because of limited ground area upon which to build.

REPORT TO THE GOVERNOR

Pursuant to your directive of December 2, 1958, I left Sacramento at 8:30 p.m. for Chicago to investigate a fire which had occurred about 2:40 p.m. on Monday, December 1, 1958, in Our Lady of the Angels School at 3820 West Iowa Street, Chicago, Illinois. I arrived in Chicago about 7 a.m., and immediately got in touch with Chief Fred Kemp who is in charge of the Fire Insurance Patrol in Chicago, and with whom I have been acquainted for some time. He accompanied me to the school and stayed with me throughout the inspection. He gave me valuable information on the fire since he had responded to this fire and had firsthand information on the situation. My report follows.

On Monday, December 1, at approximately 2:40 p.m., a fire occurred in Our Lady of the Angels School at 3820 West Iowa Street, resulting in the death of 87 children and three Sisters. A fourth Sister has since died, and five children are in critical condition. In addition, some 90 children were sent to Chicago hospitals, many with serious injuries.

The building in which this fire occurred is actually a three-story building although newspaper writers have referred to it as two stories and a basement. The bottom floor is about four feet below grade, and the distance from grade to the ceiling of the top floor is approximately 30 feet, in the section of the building where the fire occurred.

The building, under California building codes, would be considered as "ordinary Type III construction," three stories in height, and covering an area of approximately 11,000 square feet. The building is "U" shaped, having an inner court about 26 feet wide and some 80 feet long, between the two wings.

Exterior walls are of 12-inch brick and some of the stair enclosure walls are 12-inch brick. Interior walls are of wood frame with wood lath and plaster. Floors are wood frame, covered with asphalt tile. Ceilings are wood frame with wood lath and plaster, and most room areas and corridors have $\frac{3}{4}$ -inch cellulose fiber acoustical tile finish, attached with adhesive to the ceilings. The plastered walls have many coats of paint; samples obtained measure $\frac{1}{32}$ inch in thickness. I am of the opinion that the burning of this thick paint was responsible for much of the black smoke that was reported in evidence at the time of the fire.

The *number*, *width*, and *location* of exits and exit stairs were adequate to serve the occupant load. It was possible to go in either direction from any point in the corridor to an exit or exit stair. Exit facilities were seriously deficient, however, in the following respect:

1. Stair wells were not completely enclosed with fire-resistive walls; openings therein, except for one at the second-floor level in the stair well in which the fire occurred, were not protected by fire doors.
2. Corridor walls and ceilings were not of fire-resistive construction, and combustible, cellulose fiber acoustical tile was applied to ceilings thereof.
3. There were plain glass windows between the corridor and classrooms on the second floor, but not on the third floor.
4. Combustible waste material was stored at the bottom of the stair well in which the fire started.
5. Doors between corridors and classrooms were of the wood panel type and were not equivalent to $1\frac{1}{2}$ -inch solid core wood doors.
6. Plain glass transoms were located over classroom doors.

From verbal information I obtained, I understand that this building had been constructed as a church some 40 or 50 years ago, and had

been revamped into a school. Stories and sections were added from time to time. The type of construction was substantially consistent with ordinary construction in that area. It would be safe to say that there are hundreds of similar buildings being used for school purposes throughout the nation. At the time this building was constructed, building authorities and architects were not aware of, or at least did not recognize the hazards in connection with open, unenclosed stair wells. Modern building codes require that stair wells be of fire-resistive construction, and that all openings therein have approved fire door and window opening protection. Likewise, corridors are required to be of fire-resistive construction, and doors into room areas are required to have the fire-resistant equivalence of a 1½-inch solid core wood door. Window openings, including transoms, are required to be of ¼-inch wire glass. Combustible interior finishes in corridor ways are prohibited except for doors, trim, and baseboard.

A review of this building shows evidence of an effort to enclose the stairway in which the fire occurred. Three sides of the stair well were originally of 12-inch brick, and the fourth side, which connected to the corridor, had been bricked up through the first and second stories, and openings had been protected. The second-floor door was an approved, labeled fire door, but the lower doors were ordinary wood panel doors. The third or top-floor enclosure had not been completed by the installation of a wall or fire door, and it was through this opening that smoke and hot gas poured into the corridor area, and from the corridor area into classrooms, through the transom openings in which the glass broke when subjected to heat.

It is a difficult task to survey a structure of this type with the view toward making reasonable alterations to provide adequate safety for the occupants. It requires the services of trained and experienced fire safety engineers.

From verbal information I received I understand that the building did not violate city ordinances for existing buildings.

Our fire safety standards, as set forth in Title 19, California Administrative Code, limit the height of a Type III nonfire-rated building to two stories, unless other fire safety facilities such as an automatic sprinkler system is provided. An existing Type III nonfire-rated building, three stories in height, could be used for school occupancy providing that all vertical openings, including stair, elevator, and service shafts were enclosed in one-hour fire-resistive enclosures with approved fire doors and opening protection, and provided that corridors were one-hour fire-resistive and openings therein were protected by 1½-inch solid core wood doors.

I do not feel that the school authorities can be criticized for failure to make safety alterations to the building, since I am informed that local building ordinances do not require this protection in existing oc-

cupancies, and this building has been in existence for some 40 or 50 years.

The fire appears to have started at or near the bottom of the stair well, on the northeast corner of the north wing of the building. Reports indicated that combustible waste material in combustible containers was placed in this area for disposal, but how it was ignited has not yet been determined. Once started, it apparently smoldered for some time, building up accumulated smoke and hot gas until a plain glass window located about 30 inches above the stair well floor broke, admitting sufficient oxygen and draft to cause rapid burning. Fire spread up the stair well, past the second floor where the stairway was enclosed by brick wall, and opening-protected by an approved fire door, to the corridor of the third floor where no enclosure was provided. Smoke and hot gases accumulated in the corridor of the third floor, making it unusable except for some who crawled along the floor to escape through the westerly exits. Eventually, the plain glass in the transoms broke, admitting smoke and hot gas into classrooms. The interiors of some classrooms were badly burned, while others were only scorched.

More recent developments in the use of automatic venting may provide an effective means of dealing with the problem caused by open stair wells that cannot be properly enclosed. I firmly believe that if there had been an automatic vent at the top of the stair well in which the fire started, there would have been no loss of life in this fire. Automatic venting, however, is a new approach to fire control and necessitates careful evaluation of the building and exit arrangement by experienced and qualified fire prevention engineers.

Although it appears that discovery of the fire was slow, and reporting the fire may have been somewhat delayed, fire department response was prompt and efficient. Their first activity upon arrival was directed toward rescue, and they are to be complimented for their efficient and effective rescue work. Otherwise, many more lives would have been lost. The Sisters and attendants at the school are likewise to be complimented for their cool, heroic efforts to lead the children from the burning building, under difficult circumstances.

At the time of the fire the temperature was in the thirties, just below freezing. A light wind, reported to be about eight miles per hour, was blowing and the weather was clear.

At the time of the fire, classroom attendance was reported to be around 1,100 children of grammar school age.

The black smoke emitting from the building gave rise at first to a belief that flammable liquids were involved, but it is now believed that the black smoke was caused by the burning of a partial roll of roofing paper in the stair well, and by the burning of thick paint on the walls. No evidence of flammable liquids was found, according to reports made after the fire was extinguished.

According to radio, TV, and newspaper accounts received prior to my leaving for Chicago, the fire was thought to be of suspicious origin, possibly involving incendiarism. One account indicated that a child had reported hearing a muffled explosion, but accounts by other persons indicated that no explosion was heard. Still another account reported on the presence of a metal drum or container that was found in the stair well after the fire. I did not see this drum nor was I able to find anyone who had seen it. The Chicago fire officials are continuing to investigate all phases of this disaster and it may well be that when they have had an opportunity to talk to witnesses, particularly those now in the hospital, greater light will be shed on what actually happened. Likewise, the coroner's jury may bring to light, through investigation and the testimony from witnesses, further facts which may shed light upon the origin of this fire.

The following are in my opinion factors which contributed materially to this disaster:

1. The storage of waste paper and other combustible materials in stairway enclosures and in the immediate vicinity of stairways
2. Lack of proper fire-resistive enclosures and protection of openings in stairway shafts
3. The use of a three-story, nonfire-rated Type III construction for school classroom purposes, without stairway and vertical shaft enclosures or one-hour fire-resistive corridors
4. Unprotected combustible construction and interior finish materials in stair enclosures and corridor ways
5. Combustible interior finish in both room and corridor ceilings
6. Nonfire-rated plain glass in transom openings over classroom doors
7. Ordinary nonfire-rated construction of corridor walls, and lack of fire-resistive protection for door and window openings
8. Many layers of combustible paint on the stair and corridor walls as well as in room areas
9. The use of plain nonfire-rated glass windows in stairway enclosures of exterior walls

It should be borne in mind that while most of the above observations were gained through actually viewing the remainder of the building, some of the facts were given to me by various persons, and I cannot attest to their authenticity beyond stating that after viewing the situation I believe the facts reported herein to be true.

Many heroic deeds were performed by the Sisters, school employees, and firemen, and the hand of Fate played an important part in determining who would live and who would not. Some children from nearly every room escaped, while others perished. One child who had been absent because of sickness begged her mother to let her return to school

on Monday. This child was among those who perished. About 20 minutes before the fire a Sister teaching on the top floor called for volunteers to pack some old clothing for the needy. Some 12 or 15 boys volunteered. They were on the lower floor when the fire occurred and they escaped.

Everywhere in the building is mute evidence of the struggle for life: shoes and garments of small children; shoe marks on the wall where a child had lain with feet against the wall, protecting that area from the searing heat that burned the paint from the wall where his feet did not afford protection.

One needs only to visit the scene of this disaster to be convinced that no cost is too high, no effort can be too great, and no inconveniences too severe in providing proper and adequate fire safety for the children in our public, private, and parochial schools.

This office has placed in the mail a bulletin to all California fire officials directing their attention to this disaster and urging local fire authorities to review and re-evaluate the fire safety situations of public, private, and parochial schools in their respective areas. We have also instructed our district office supervisors to give consideration to school occupancies in their areas of responsibility, and to aid and assist local authorities when such assistance is requested.

Continued periodical inspection in schools as well as in other types of occupancies is essential in order to insure that safety devices are maintained, hazardous conditions eliminated, and good housekeeping practiced.

A NEW COURSE TO MEET CERTAIN STATE REQUIREMENTS IN SAFETY AND HEALTH

JOHN R. EALES, *Consultant in Secondary Education*

In 1953, the State Board of Education established 30 class hours of instruction in driver education as the minimum requirement. Since that time certain schools have organized and operated semester courses in which driver education is presented in conjunction with other instruction that is designed to meet certain state requirements pertaining to safety and health. The data collected in the October Report of High School Principal, 1957, were analyzed to determine the extent to which this practice was being employed. However, in making this analysis, only those courses in which driver education was combined with first aid and with other instruction, such as the effects of alcohol and narcotics, or fire prevention, were considered.

A total of 522 schools offered driver education during 1957-59. Of this number, 193 were offering driver education and first aid in some combination with other instruction. These courses had a variety of titles and differed in nature. However, for the purposes of this study the courses have been classified as follows:

Social Studies

Social Studies 9
Social Studies 10
Freshman Problems
Sophomore Problems
Life Problems
Orientation
Freshman Orientation
Sophomore Goals
Social Living
Guidance
World History
Civics
Citizenship
Government
Personal Vocational
Driver Education

Science

General Science
Life Science
Biology
Sophomore Science
Science 9
Science 10

Miscellaneous

Driver Education
Driver Education
and Safety Education
Driver Education
and Life Saving
Driver Education
and First Aid
Safety Education
Health and Driver
Education
Health and Safety
Hygiene
Health
Health Education
Health Science
Healthful Living
State Requirements
General State Requirements

It was noted that 106 of the schools reported these courses as part of the social studies; 17 schools considered them part of the science courses; and the remaining 70 schools used miscellaneous titles such as driver education, health, and state requirements. Furthermore, it was found that 114 of the courses were taught in the tenth grade; 78 were taught in the ninth grade, and one course was offered in the twelfth grade.

In many schools, provisions for meeting the state requirements are scattered throughout a number of courses. Theoretically, this places several phases of required instruction, such as fire prevention, in a meaningful setting, but in practice, one or more of these phases suffer neglect due to allocation of class time to other topics.

Since driver education has become a state requirement it has often been scheduled as part of an already required course. This means that the instructor is, in a sense, drafted to teach in an area for which he may have no preparation and which he may feel encroaches on the time he should be devoting to the course which he is prepared to teach and in which he is interested. As a result driver education is often poorly presented.

Another example of the same type of situation is to be found in instruction in first aid. Often it is scheduled in what seems a logical context, but for some reason the instructor may feel that first aid has no place in his class and resents teaching the subject. Students often do not see the need for a course in first aid, and this further complicates the situation.

Schools which have developed courses that include provision for meeting a number of state safety and health requirements should assign to these courses teachers who are well prepared to do an adequate job of making the work meaningful to students. These courses may be especially effective when driver education is used as the core, and other requirements are carefully placed, so that a more meaningful treatment of these areas of required instruction can result.

When a class studies what to do in case of an automobile accident it will be found that it is the duty of a driver involved in an accident to give reasonable assistance to any person injured. Here is a meaningful place to introduce the ten-hour Red Cross Standard Course in First Aid. It is unrealistic to teach driver education without bringing up the problem of the drinking driver. The stage is set thereby for a presentation of the effects of alcohol and narcotics. Fire prevention can be introduced when the law concerning litterbugs is discussed. Aspects of public safety and accident prevention, as well as manners and morals, can also be brought into a course which has driver education as its central core. However, if the state requirements are set up so that each required area is given separate treatment, without using driver education as a central core, then much of the advantage to be gained by establishing such a core is lost.

It is the legal duty of the high schools to supplement the instruction given by parents, and by community agencies especially interested in the areas of driver education, first aid, the effects of alcohol and narcotics, fire prevention, and manners and morals. It appears that a course which includes a number of these requirements is fast becoming a new offering in our high schools. This gives each school the opportunity to

select a trained, interested teacher, and to let him present a meaningful and unified treatment of these topics. Schools that are using this approach can point to *one* course in which *all* students meet certain state safety and health requirements, as well as to other courses in which the requirements are given attention. It appears that California high schools have developed a new course, called by many different names, but one that in all instances is designed to meet the requirements for safety and health instruction which are considered essential to the program of general education provided for all students.

Departmental Communications

BUREAU OF TEXTBOOKS AND PUBLICATIONS

RECENT PUBLICATIONS OF THE DEPARTMENT OF EDUCATION

IVAN R. WATERMAN, *Chief*

A Report to the California Legislature on the Study of Public School Support. Prepared pursuant to Section 46 of Chapter 1073, Statutes 1957, by the California State Department of Education, Roy E. Simpson, Superintendent of Public Instruction; Wallace W. Hall, Associate Superintendent of Public Instruction; and Chief, Division of Public School Administration; Ronald W. Cox, Assistant Chief, Division of Public School Administration. Sacramento: California State Department of Education, 1959. Pp. xiv+212.

This report is the result of careful scrutiny and analysis, extending over a period of many months, of the operation of California laws relating to the support of public schools. The 1957 Regular Session of the Legislature passed Assembly Bill 3045 (Chapter 1073, Statutes 1957), increasing state support for public schools for a two-year period. The statute made the Department of Education responsible for reporting to the Legislature in January, 1959, the recommendations of the Department of Education regarding support of the public school system. In order to carry out this mandate, the Department of Education solicited the help and advice of public school personnel and organizations and associations familiar with and having an interest in public school support. This report is the result of that collaboration, and contains the following principal recommendations:

1. Removal of financial subsidies that serve as incentives for poor educational practices
2. Provision of incentives for improvement of educational practices
3. Improvement and extension of equalization aid
4. Improvement and strengthening of school district organization

The report deals with detailed analyses of the support, operation of support, and administration of support of public schools; recommendations for the improvement of the structure of public school support; the adequacy of support for the public school system; the extent of state support needed; and State School Fund requirements to meet needed state support.

Trade and Industrial Education in California Public High Schools: A Study of Pre-employment Vocational Classes in Trade and Industrial Education. Prepared by Karl A. Thomte, Assistant Supervisor, Trade and Industrial Education, Bureau of Industrial Education, California State Department of Education. Sacramento: Bulletin of the California State Department of Education, Vol. XXVII, No. 13, November, 1958. Pp. viii + 72.

This bulletin reports on a study that was made of problems in trade and industrial education, as part of a state-wide survey of vocational education programs in

operation in the secondary schools of California, 1956-57. The area covered in this bulletin is limited to the high school pre-employment vocational program in trade and industrial education. It contains information relating to changes in social, economic, and industrial conditions taking place in California; and information needed to trace the related changes taking place in the vocational education program. The bulletin includes chapters on employment practices in industry and on implications for action.

Copies have been distributed to county, city, and district superintendents of schools, to principals of high schools and junior colleges in districts not employing superintendents, and to selected personnel. The purchase price is 40 cents per copy plus sales tax on California orders.

Progress Report of the California State Central Committee on Social Studies: A Tentative Allocation of Content for the Social Studies, Kindergarten Through Grade Fourteen. Sacramento: California State Department of Education, December, 1958. Pp. x + 46.

This publication is the fifth in a series of progress reports on the state-wide activities of the California State Central Committee on Social Studies. It contains suggestions for revisions in the social studies program in the public schools that are needed to keep the program in line with the progress that is taking place on the local, state, national, and world scene. Grade level allocations proposed in this report include certain changes and adjustments that introduce an element of newness throughout the social studies program. An overview of the grade level allocations and areas of emphasis for each grade level is presented, as well as detailed allocations for each grade level. This presentation provides for the flexibility needed to introduce strands of emphasis where they are most applicable, and gives perspective on the continuity that is essential to the social studies program. The report also serves as a guide to illustrate how the California State Central Committee on Social Studies is working with groups across the state to develop a framework for the social studies.

Copies have been distributed to county, city, and district superintendents of schools, to principals of elementary schools, junior high schools, senior and four-year high schools and junior colleges in districts not employing superintendents, and to selected personnel. Additional copies are available upon request.

A Survey of Business Education in the Secondary Schools of California. Prepared for the Bureau of Business Education, California State Department of Education, by Paul S. Lomax, Professor Emeritus and former Chairman, Department of Business Education, New York University. Sacramento: Bulletin of the California State Department of Education, Vol. XXVII, No. 14, December, 1958. Pp. vi + 50.

This bulletin reports a survey of business education undertaken to determine the adequacy and effectiveness of the business education programs being offered by California junior high schools, senior and four-year high schools, and junior colleges. Problems that have developed in conducting business education programs at these levels, as well as in business teacher education programs, are identified; and steps that should be taken to resolve these problems are recommended. The philosophy and objectives of business education are stated; and other phases of business education that are dealt with include occupational and educational trends; curriculum; enrollments; guidance and placement; teacher education; and administration and supervision. There is a selected bibliography.

Copies have been distributed to county, city, and district superintendents of schools, to principals of high school and junior college districts without district superintendents, to state college business education departments, and to selected personnel. The purchase price is 35 cents per copy plus sales tax on California orders.

Secretarial Services in the Elementary School. Prepared by Ester Nelson, Consultant in Elementary Education, Bureau of Elementary Education, California State Department of Education. Sacramento: Bulletin of the California State Department of Education, Vol. XXVII, No. 15, December, 1958. Pp. viii + 32.

This bulletin deals with a study of secretarial services in the elementary school, and is designed to ascertain the work that may be appropriately classified as secretarial; to define the competencies needed in secretarial positions; and to indicate ways of upgrading such services. It provides the opportunity to determine the degree to which administrative organization in the schools has been improved by the employment of secretarial and clerical personnel.

The bulletin contains information on present secretarial positions and on positions needed; opinions regarding more clerical assistance for teachers; work in elementary schools appropriately classified as secretarial; qualifications needed by an educational secretary; and ways to upgrade secretarial services.

Copies have been distributed to county, city, and district superintendents of schools, and to principals of elementary schools in districts not employing superintendents. The purchase price is 25 cents per copy plus sales tax on California orders.

For Your Information

STATE BOARD OF EDUCATION ACTIONS

The following actions were taken by the State Board of Education at its regular meeting held in Riverside, January 15 and 16, 1959.

Approval of Changes in School District Organization

In accordance with the provisions of Chapter 16 of Division 2 of the Education Code (Section 4911), the Board approved the following proposal regarding a change in school district organization:

Formation of a unified school district in Sacramento County—A proposal by the augmented Sacramento County Committee on School District Organization that an election be held to determine whether the voters in the San Juan Union High School District wish to form a unified school district.

Call for Bids for Textbooks in Reading and Literature

On recommendation of the State Curriculum Commission, the Board authorized the issue of a call for bids on basic and supplementary textbooks and teachers' manuals, for adoption periods of not less than four years nor more than eight years, beginning July 1, 1961, for use in the subjects and grades indicated, and set the date by which books must be submitted as August 10, 1959.

READING

Basic and supplementary textbooks for grades one to six, inclusive; and accompanying teachers' manuals or teachers' editions of such books

Basic textbooks for grades seven and eight; and accompanying teachers' manuals or teachers' editions of such books

LITERATURE

Supplementary textbooks in literature for grades seven and eight; and accompanying teachers' manuals or teachers' editions of such books

Revocation of Credentials for Public School Service

The Board revoked the credentials, life diplomas, and other documents for public school service heretofore issued to the following persons, effective on the dates shown:

Name	Date of birth	Revocation effective	By authority of Education Code Section
Ball, Clarence H. _____	9-21-14	December 19, 1958	12754
Beauchamp, Frederick Louis _____	8-26-09	January 16, 1959	12756
Long, Linus Wilson _____	12-25-20	January 16, 1959	12755
Lynch, John Christopher _____	9-30-24	January 16, 1959	12756
McDowell, Dale Clarence _____	3-12-22	January 16, 1959	12756
McKay, Robert _____	3-11-22	January 16, 1959	12756
Nelson, Mitchell I. _____	8-10-17	January 16, 1959	12756
Priest, Jack Vernon _____	8-14-22	January 16, 1959	12752
Todd, Adele K. _____	6-15-07	January 16, 1959	12755

HEALTH SCHOLARSHIPS AVAILABLE

The National Foundation for Infantile Paralysis offers annual March of Dimes Health Scholarships to help provide four years of college or university education in preparation for five key professions—nursing, medicine, physical therapy, medical social work, and occupational therapy. A minimum of 505 health scholarships will be offered each year, beginning this year. Each awardee will receive \$500 a year for four years. Yearly renewals and payments will be dependent upon the recipient's scholastic records during each period.

Scholarships will be available to citizens in each of the 49 states, Hawaii, the District of Columbia, and Puerto Rico, and will be distributed on a geographical basis. California will offer five scholarships in each field. Winners of scholarships are not committed to work in the health fields of special interest to the National Foundation such as polio, arthritis, or birth defects. They are, however, expected to serve the health field at large, working as members of the profession for which they are prepared.

The Foundation's local chapters will accept health scholarship applications and pass them on to the state committee composed of members of the five health professions. Financial need, scholastic achievement, motivation, and aptitude will be taken into consideration in granting scholarships. Scholarship money need not be limited to tuition but may be used to cover any appropriate student expense. Students may also accept other scholarship funds, providing the Foundation is informed of the source and amount. Application for a scholarship may be made only by a student who has been accepted for an approved program by an accredited college or university.

Nursing, physical therapy, and occupational therapy scholarships will be available to graduating high school students who have been accepted for an approved four-year program in these fields by accredited colleges or universities. Medical social work scholarships will be available at the college junior year and will extend through two years of required graduate work. Scholarships in medicine will be available at the college junior, senior, or first graduate year, depending upon the requirements of the medical school. Detailed information is available from the Division of Professional Education, National Foundation for Infantile Paralysis, 301 East 42nd Street, New York 17, New York.

AVIATION EDUCATION SCHOLARSHIP

The California Wing Auxiliary, Air Force Association, is offering two \$50 scholarships to California teachers who are interested in an aviation education workshop. Scholarships will include a membership in the California Aviation Education Association.

Funds will be paid directly to the teacher. To be eligible the applicant must submit a paragraph stating how he intends to apply the knowledge gained in such a course to his teaching. Applicants will be selected by a committee of California aviation education sponsors.

Applications should be sent to Mrs. M. Goldberg, Chairman of Aviation Education, California Wing Auxiliary, Air Force Association, 10762 Ashby Avenue, Los Angeles 64, California. Deadline for applications is April 15.

CALENDAR OF EDUCATIONAL MEETINGS AND EVENTS

A master calendar of educational meetings and events of state-wide or regional significance is maintained in the office of the Superintendent of Public Instruction. The principal list of events for 1958-59 appeared in the September, 1958 issue of *California Schools*. Notices that are not received at the time of publication of this list are published as they are received.

Date, 1959	Organization and Event	Place
March 13-14	California Industrial Education Association, Annual State Convention	Stockton
April 4	California Scholarship Federation, Southern Region, Annual Spring Conference	Claremont
April 11	California Scholarship Federation, South Central Region, Annual Spring Conference	Los Angeles
April 18	California Scholarship Federation, Central Region, Annual Spring Conference	San Jose
April 22-24	California School Supervisors Association, Northern Section, Spring Conference	Richardson Springs
April 25	California Scholarship Federation, Northern Region, Annual Spring Conference	Sacramento

NATIONAL SCIENCE FOUNDATION SUMMER INSTITUTES FOR ELEMENTARY SCHOOL TEACHERS AND SUPERVISORS

The National Science Foundation of Washington, D. C., announces that grants totalling approximately \$480,000 have been awarded to 12 colleges and universities to support a program of summer institutes for elementary school supervisors and teachers. Alan T. Waterman, Foundation Director, has announced that the institutes will offer courses especially designed to meet the needs of elementary school supervisors and teachers in presenting science and mathematics courses. Supervisors and teachers will be given opportunity to learn about recent advances in science, to update their earlier training in science and mathematics, and to study fields in which their training is lacking or inadequate.

Some 500 supervisors and teachers will receive stipends up to \$75 a week, plus allowances for dependents and travel. Stipend holders will

not have to pay tuition and fees. The institutes will vary in length from four to eight weeks.

Participants will be chosen by the institutes, not by the National Science Foundation. Inquiries and applications for participation should be addressed to directors of the individual institutes named in the following list. Early inquiry is advised.

<i>Institution</i>	<i>Director</i>	<i>Courses</i>
CALIFORNIA		
San Jose State College San Jose	Edward J. Harrington Department of Science Education	General science
COLORADO		
University of Colorado Boulder	James R. Wailes College of Education	General science
ILLINOIS		
University of Illinois Urbana	J. Myron Atkin College of Education	General science for supervisors
INDIANA		
DePauw University Greencastle	Donald J. Cook Department of Chemistry	General science and mathematics
KANSAS		
University of Kansas Lawrence	Robert W. Ridgway School of Education	Biological or physical science
MICHIGAN		
University of Michigan Ann Arbor	Joseph N. Payne School of Education	Arithmetic
NEW JERSEY		
Rutgers University New Brunswick	Emory P. Starke, Chairman, Department of Mathematics	Arithmetic
NEW YORK		
University of Rochester Rochester	William A. Fullager, Dean, College of Education	General science
New York State University Teachers College at Plattsburgh	F. Reese Nevin, Chairman, Department of Science and Mathematics	General science and mathematics
PENNSYLVANIA		
Pennsylvania State University University Park	E. Seymour Fowler College of Education	General science
RHODE ISLAND		
University of Rhode Island Kingston	Elmer A. Palmatier Department of Botany	Ecological background of natural history
SOUTH CAROLINA		
University of South Carolina Columbia	H. W. Davis, Head, Department of Chemistry	Physical science

Professional Literature

PUBLICATIONS RECEIVED

- Bookkeeping for High Schools: Course of Study and Syllabus.* Curriculum Bulletin 1957-58 Series, No. 8. Brooklyn 1, New York: Board of Education of the City of New York, 1958. Pp. vi + 112. \$0.40.
- Child Welfare and School Attendance Accounting Manual for Los Angeles County Schools.* Los Angeles 12: Office of Los Angeles County Superintendent of Schools, 1958. Pp. viii + 104.
- CONANT, JAMES B. *The American High School Today: A First Report to Interested Citizens.* New York 36: McGraw-Hill Book Co., Inc., 1959. Pp. viii + 144. \$1.00.
- Educational Testing Service Annual Report, 1957-58.* Princeton, New Jersey: Educational Testing Service, 1958. Pp. 108.
- The Ford Foundation Annual Report, October 1, 1957 to September 30, 1958.* New York 22: The Ford Foundation, 1958. Pp. 184.
- A Guide for Use with the Indiana University Film Series in the Area of Preparation and Use of Audio-Visual Instructional Materials.* Bloomington, Indiana: Indiana University Audio-Visual Center, 1958. Pp. 96. \$2.00.
- Guiding Growth in Written Expression. Volume III: Upper Grades.* Curriculum Supplement—Language Arts No. 5. Division of Elementary Education, Office of the Los Angeles County Superintendent of Schools. Los Angeles 12: Office of Los Angeles County Superintendent of Schools, 1958. Pp. xii + 166.
- How Good Are Your Schools?* Washington 6, D. C.: National Education Association, 1958. Pp. 32. \$0.10.
- MOUSTAKAS, CLARK E. *The Alive and Growing Teacher.* New York 16: Philosophical Library, Inc., 1959. Pp. x + 158. \$3.00.
- Physical Activities for Elementary Schools: A Manual of Physical Activities in the Health Educational Program.* Curriculum Bulletin 1956-57 Series, No. 9. Brooklyn 1, New York: Board of Education of the City of New York, 1957. Pp. viii + 256. \$2.00.
- PIERCE, DAVID A. *Saving Dollars in Building Schools.* New York 22: Reinhold Publishing Corporation, 1959. Pp. 114. \$5.95.
- Salaries and Salary Schedules Reported for 1958-59.* Research Bulletin No. 117, December, 1958. San Francisco 2: California Teachers Association, 1958. Pp. 36. \$1.00.
- SMITH, J. RUSSELL. *Teaching A Unit in Astronomy: Grades 1 to 9.* New York 1: Vantage Press, Inc., 1958. Pp. 150. \$2.75.
- Source Materials for Ninth Grade Arithmetic: Arithmetic in Everyday Living.* Brooklyn 1, New York: Board of Education of the City of New York, 1958 (revised). Pp. vi + 54. \$0.50.

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